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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/777,082

02/13/2004

Takahiro Matsumoto

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EXAMINER

VIJAYAKUMAR, KALLAMBELLA M

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/777,082	Applicant(s) MATSUMOTO ET AL.	
	Examiner Kallambella Vijayakumar	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-16 is/are pending in the application.
- 4a) Of the above claim(s) 6-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 12-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/13/2007 has been entered.

Claims 1-3 and 5-16 are currently pending with the application. Claims 1, 5 and 16 were amended. Claim 4 cancelled. Claims 6-11 withdrawn from further consideration.

The prior art by Jacobson (US 5,296,168) is withdrawn over the disclosure in the prior art that shows the alumina coated ATO to be a conductive powder (Table-1, Cl-6, Ln 3-5).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of "fired or sintered insulated film" does not find literal support in the specification that discloses calcination of multilayered powder at 1000C (Spec: Pg-4, Ln 15-16; Pg-12, Ln 13-14), wherein sintered includes change in grain structure and fired include drying/baking of the sample from above ambient to less than melting point of the ceramic.

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Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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1. Claims 1-3, 5 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative under 35 USC 103(a) as obvious over Nonninger et al (WO 00/14017).

The US Patent 6,553,966 issued to Nonninger et al is being used as English Translation of the WO Publication in the present rejection.

Nonninger teaches the composition of ITO particles for coating/molding/electrooptics/microelectronics with a particle size of 5-30 nm whose surface is coated with a metal alkoxide (M-Si, Ti, Zr) and calcined between 200 and 400C (Abstract, CI-3, Ln 17-23; CI-4, Ln 41-49; CI-6, Ln 22-43; CI-7, Ln 26-57). The formation of an overcoat of insulating surface oxide over the conductive ITO nanoparticles up on calcination at elevated temperatures is anticipated due to the dehydration/removal of water from the hydroxide. The surface modifying component/coating was 2-6% by weight. The prior art composition will be either same or substantially same as that claimed by the applicants and, when the reference teaches a product that appears to be the same as the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113. With regard to the dielectric constant in claim-2, the prior art coating is either same or substantially same as that claimed by the applicants, and they will possess same properties/characteristics (See, specification, examples). With regard to claim-3, the formation of insulating metal oxide is anticipated due to the dehydration of the hydroxide upon calcination at elevated temperatures. With regard to the coating range in claim-5, the prior art coating when computed as thickness overlaps with the instant claimed range. With regard to the particle size in claim-16, the prior art particle size of 5-30 nm overlaps with the instant claimed range. All the limitations of the instant claims are met.

The reference is anticipatory.

In the alternative that the disclosure by Nonninger be insufficient to arrive at the limitations of the instant claims by the applicants, it would be obvious to a person of ordinary skilled in the art to optimize the calcination conditions of the coated particles to reduce the drying time with predictable results, because the prior art is suggestive of varying the heat treating conditions.

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2. Claims 1-3, 5 and 16 are rejected under 35 U.S.C. 102(e/a) as anticipated by, or in the alternative under 35 USC 103(a) as obvious over Nonninger et al (US 6,553,966).

Nonninger teaches the composition of ITO particles for coating/molding/electrooptics/microelectronics with a particle size of 5-30 nm whose surface is coated with a metal alkoxide (M-Si, Ti, Zr) and calcined between 200 and 400C (Abstract, Cl-3, Ln 17-23; Cl-4, Ln 41-49; Cl-6, Ln 22-43; Cl-7, Ln 26-57). The formation of an overcoat of insulating surface oxide over the conductive ITO nanoparticles up on calcination at elevated temperatures is anticipated due to the dehydration/removal of water from the hydroxide. The surface modifying component/coating was 2-6% by weight. The prior art composition will be either same or substantially same as that claimed by the applicants and, when the reference teaches a product that appears to be the same as the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113. With regard to the dielectric constant in claim-2, the prior art coating is either same or substantially same as that claimed by the applicants, and they will possess same properties/characteristics (See, specification, examples). With regard to claim-3, the formation of insulating metal oxide is anticipated due to the dehydration of the hydroxide upon calcination at elevated temperatures. With regard to the coating range in claim-5, the prior art coating when computed as thickness overlaps with the instant claimed range. With regard to the particle size in claim-16, the prior art particle size of 5-30 nm overlap with the instant claimed range. All the limitations of the instant claims are met.

The reference is anticipatory.

In the alternative that the disclosure by Nonninger be insufficient to arrive at the limitations of the instant claims by the applicants, it would be obvious to a person of ordinary skilled in the art to optimize the calcination conditions of the coated particles to reduce the drying time with predictable results, because the prior art is suggestive of varying the heat treating conditions.

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3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Nonninger et al (1) (WO 00/14017) or Nonninger et al (2) (US 6,553,966) in view of Shibuta et al (US 5,908,585).

The disclosure on the composition of ITO Nonninger as set forth in rejection-1 under 35 USC 102(b)/103(a) and as set forth in rejection-2 under 35 USC 102(e/a)/103(a) are herein incorporated.

The prior art/s do/es not teach the surface modified/coated ATO per the claim.

In the analogous art, Shibuta et al teach the transparent and conductive coating compositions containing ITO or ATO nanoparticles for semiconductor elements and electronic parts (CI-7, Ln 25-26; CI-7, Ln 60 - CI-8, Ln 2).

It would be obvious to a person of ordinary skilled in the art to substitute the ITO particles in the coating composition of either Nonninger-1 or Nonninger-2 with the ATO particles of Shibuta et al as functional equivalent with predictable results and reasonable expectation of success to benefit from enhanced optical transmission/ characteristics, because the teachings are in the analogous art of coatings for electronic devices and genus containing the species of ITO and ATO of Shibuta encompasses the ITO species of Nonninger (1 or 2).

4. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Nonninger et al (1) (WO 00/14017) or Nonninger et al (2) (US 6,553,966) in view of Inamura et al (US 6,908,574).

The disclosure on the composition of ITO Nonninger as set forth in rejection-1 under 35 USC 102(b)/103(a) and as set forth in rejection-2 under 35 USC 102(e/a)/103(a) are herein incorporated.

The prior art/s do/es not teach the surface modified/coated acicular ITO per the claims.

In the analogous art, Inamura et teach the coating compositions containing ITO with a major axis of 0.1 micron or less and a minor axis of 0.05 micron or less with enough dispersibility in forming coatings having outstanding optical characteristics (Abstract, CI-2, Ln 40-45).

It would be obvious to a person of ordinary skilled in the art to substitute the ITO particles in the coating composition of either Nonninger-1 or Nonninger-2 with the particles of Inamura as functional equivalent with predictable results to benefit from enhanced optical characteristics, because the teachings

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are in the analogous art of optoelectronic coatings. Further, with regard to the substitution of particles of Nonninger with the particles of Inamura in the coating composition, a prima facie case of obviousness exists where the claimed ranges of shapes and prior art ranges of the shapes do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.).

5. Claims 1-3, 5, 12, and 16 are rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative under 35 USC 103(a) as obvious over Ito et al (WO 02/22757).

The US Patent 6,992,431 issued to Ito et al is being used as the English translation of the WO document in the present rejection.

Ito et al teach the composition of a composite high resistance fine particle of ATO (Sb-Sn-Oxide) with a particle diameter of 50 nm coated with a surface shell of 1-nm thick silica (CI-6, Ex-2). The prior art teaches the outer shell to be resistive/insulative oxides such as silica, titania, alumina and zirconia, and the coated particle to have a particle size of 5-100 nm (CI-2, Ln 48-58). The prior art insulative coating over the core can either be dried (i.e. fired/calcined/dried) or undried/hydrated one, because the disclosure is not limited to examples, and "[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968). The prior art composition is either same or substantially same as that claimed by the applicants and, when the reference teaches a product that appears to be the same as the product set forth in a product-by-process claim although produced by a different process, the claim is not patentable. See *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983) And *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). See also MPEP §2113. All the limitations of the instant claims are met.

The reference is anticipatory.

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In the alternative that the disclosure by Ito be insufficient to arrive at the limitations of the instant claims by the applicants, it would be obvious to a person of ordinary skill in the art to optimize the drying conditions of the ITO particles to a temperature of at least a bit more than 400-500C, i.e. the baking temperature of the coated film, with predictable results and reasonable expectation of success to benefit from improved dispersibility of the particles and reduced fractures in the coated film caused by the dehydration of hydrous oxide coating, because such a heat treatment of the coated ITO particles was well known in the art at the time of disclosure of the invention by the applicants (See Nonninger et al in the rejection-1) and the formation of composite particle containing heat treated surface oxide layer in the film would be obvious.

Response to Arguments

Applicant's amendment overcomes the objection to claim-1 in the previous office action and the prior art by Jacobson. Applicant's arguments filed 11/16/2007 with respect to claims have been fully considered but are moot in view of the new ground(s) of rejection. With regard to the argument that, Ito teaches an example containing sol-gel coated AZO and does not teach a particle with an insulating film as claimed, the prior art does not limit the composition to hydrous surface coatings, while it teaches particles coated with insulative oxides that can also be dehydrated/fired/sintered oxide coatings (Res, Pg-8, Para-1, Ln 1-3; Pg-12, Para-2 to Pg-13, Para-2). With regard to the argument that fired or sintered insulating film defines a structure without voids and the benefits of the applicant's powder (Pg-10, Para 1-3) and non-porous continuous i.e. fully encapsulated (Res, Pg-10, Para-1), they are not part of the instant claims, and "That claims are interpreted in light of the specification does not mean that everything in the specification must be read into the claims." *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 957, 220 USPQ 592, 597 (Fed. Cir. 1983), cert. denied, 469 U.S. 835 (1984).

For the reasons set forth above, applicants fail to patentably distinguish their composition over the prior art.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on 6.30-4.00 Mon-Thu, 6.30-2.00 Alt Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/
Feb 21, 2008.

/Stanley Silverman/
Supervisory Patent Examiner, Art Unit 1793